

Claims 1-26 remain pending in this application, claims 27 and 28 having been canceled, without prejudice or disclaimer, and claims 1-3, 5-8, and 10-26 having been amended, by the present amendment.

In the outstanding Office Action, claims 1, 2, and 21-24 were rejected under 35 U.S.C. § 102(e) as being anticipated by *Hattori*, and claims 3-20 and 25-28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hattori* in view of *Swift*.

Claims 1-3, 5-8, and 10-28 have been amended. More particularly, independent claims 1, 23, and 24 have been amended to recite that the brush roller is movable from a position in which the brush is away from and not in contact with the surface of the member to be cleaned to a position in which the brush contacts the surface of the member to be cleaned due to a weight of the brush roller.

As a quick synopsis of the applied prior art references, Applicants hereby repeat the abstracts of *Hattori* and *Swift*, as follows:

*Hattori* discloses that in order to apply bias to a charging roller for charging a surface of a photoconductive drum uniformly, a power supply roller, which rotates while contacting with a surface of the charging roller, is provided. Brushes may be provided on the surface of the power supply roller. Further, by providing a member for removing a toner and sheet particles adhering to the surfaces of the charging roller and the power supply roller, the surface of the charging roller can be maintained in a clean condition and the surface of the photoconductive drum can be charged statically and uniformly.

*Swift* discloses a cylindrical fiber brush useful in electrostatic charging and cleaning in an electrostatographic imaging process comprises an elongated cylindrical core having bound thereto a spirally wound conductive pile fabric strip forming a spiral seam between adjacent windings of the fabric strip, the fiber fill density of said fabric strip at the strip edge

being at least double the fiber fill density in the center portion of the fabric strip. The increased fiber fill density at the strip edges provides additional fibers to fill the seams between the adjacent windings and improves the charging and cleaning performance at low rotational speeds.

Neither *Hattori* nor *Swift* teach or suggest, as is now recited in amended independent claims 1, 23, and 24, that the brush roller is movable from a position in which the brush is away from and not in contact with the surface of the member to be cleaned to a position in which the brush contacts the surface of the member to be cleaned due to a weight of the brush roller.

More particularly, the brush rollers of both *Hattori* and *Swift* are mounted on shafts so as to be rotatable, but the shaft on which the brush rollers are mounted are not movable from a position in which the brush is away from and not in contact with the surface of the member to be cleaned to a position in which the brush contacts the surface of the member to be cleaned due to a weight of the brush roller. Rather, the shaft of the brush roller of both *Hattori* and *Swift* is not movable from one position to another.

Applicants respectfully traverse the rejection of independent claim 25 and dependent claims 3 because *Swift* does not teach or suggest filaments having a length equal to 2 mm or below. The Office Action states that *Swift* discloses “a cleaning brush 26 having filaments with a length of below 2 mm, . . . (Col. 3, lines 30-34). However, in column 3, line 31, Applicants respectfully submit that *Swift* discloses “a pile height from about 0.1 to 0.5 inches.” Since  $2.54 \text{ cm} = 1 \text{ inch}$ , one would convert 0.1 of an inch and 0.5 of an inch to centimeters by multiplying by  $(2.54 \text{ cm} / 1 \text{ inch})$  to arrive at 0.254 cm and 1.27 cm. Then, since  $1 \times 10 \text{ mm} = 1 \text{ cm}$ , one would convert 0.254 cm and 1.27 cm to mm by multiplying by

(1 x 10 mm / 1 cm) to arrive at 2.54 mm and 12.7 mm. Therefore, *Swift* does not teach filaments having a length of 2 mm or below.

With respect to dependent claims 5, 10, 14, and 27, the Office Action alleges that *Swift* discloses that the brush roller has a weight of 50 g or above, but 200 g or below. However, Applicants respectfully submit that *Swift* does not disclose anything about the weight of its brush roller 26.

With respect to dependent claims 6, 11, 15, 18, 26, and 28, the Office Action alleges that *Swift* discloses that the filaments have base ends thereof affixed to the core of the brush roller by electrostatic implantation. However, Applicants respectfully submit that *Swift* does not disclose anything about the filaments of its brush roller 26 having base ends that are affixed to the core by electrostatic implantation.

Applicants respectfully submit that the amendments to claims 2, 3, 5-8, and 10-28 do not add new matter. Applicants also respectfully submit that claims 2-22 are either directly or indirectly dependent upon amended claim 1 so that arguments serving to patentably distinguish amended claim 1 from the prior art of record are available, among others, to patentably distinguish claims 2-22. Applicants also respectfully submit that claims 26-28 are either directly or indirectly dependent upon amended claim 25 so that arguments serving to patentably distinguish amended claim 25 from the prior art of record are available, among others, to patentably distinguish claims 26-28. Based on the foregoing, Applicants respectfully request withdrawal of the rejections of the claims under 35 U.S.C. § 102(e) and 35 U.S.C. § 103(a), and allowance of claims 1-28.

In view of the foregoing, claims 1-28 are believed to be in condition for allowance, and an early and favorable action to that effect is respectfully requested.

Finally, the attention of the U.S. Patent and Trademark Office is directed to the change of address of Applicants' representative, effective January 6, 2003:

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Please direct all future communications to this new address.

Respectfully submitted,

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**IN THE CLAIMS:**

Please amend claims 1-3, 5-8, and 10-28, as follows:

- C 1. (Amended) In a cleaning device comprising:  
a brush roller having a brush that contacts a surface of a member to be cleaned, [said]  
the brush roller being movable from a position in which the brush is away from and not in  
contact with the surface of the member to be cleaned to a position in which the brush contacts  
[said] the surface of the member to be cleaned due to a weight of [said] the brush roller and  
the brush roller rotates by following a movement of [said] the surface of the member to be  
cleaned.
- C 2. (Amended) The device as claimed in claim 1, wherein the member to be cleaned  
comprises a charge roller that faces an image carrier for charging [said] the image carrier.
- c/b 3. (Amended) The device as claimed in claim 1, wherein [said] the brush has  
filaments having a length of 2 mm or below.
- O 5. (Amended) The device as claimed in claim 4, wherein [said] the brush roller has a  
weight of 50 g or above, but 200 g or below.
- O 6. (Amended) The device as claimed in claim 5, wherein the filaments have base  
portions thereof affixed to a core of [said] the brush roller by electrostatic implantation.
- O 7. (Amended) The device as claimed in claim 6, wherein the member to be cleaned  
comprises a cylindrical rotary body, and [said] the brush contacts a surface of [said] the

rotary body at a position above a horizontal plane containing an axis of [said] the rotary body.

8. (Amended) The device as claimed in claim 7, wherein the member to be cleaned comprises a charge roller that faces an image carrier for charging [said] the image carrier.

9. (Amended) The device as claimed in claim 9, wherein [said] the brush roller has a weight of 50 g or above, but 200 g or below.

11. (Amended) The device as claimed in claim 10, wherein the filaments have base portions thereof affixed to a core of [said] the brush roller by electrostatic implantation.

12. (Amended) The device as claimed in claim 11, wherein the member to be cleaned comprises a cylindrical rotary body, and [said] the brush contacts a surface of [said] the rotary body at a position above a horizontal plane containing an axis of [said] the rotary body.

13. (Amended) The device as claimed in claim 12, wherein the member to be cleaned comprises a charge roller that faces an image carrier for charging [said] the image carrier.

14. (Amended) The device as claimed in claim 1, wherein [said] the brush roller has a weight of 50 g or above, but 200 g or below.

15. (Amended) The device as claimed in claim 14, wherein the filaments have base portions thereof affixed to a core of [said] the brush roller by electrostatic implantation.

16. (Amended) The device as claimed in claim 15, wherein the member to be cleaned comprises a cylindrical rotary body, and [said] the brush contacts a surface of [said] the rotary body at a position above a horizontal plane containing an axis of [said] the rotary body.

17. (Amended) The device as claimed in claim 16, wherein the member to be cleaned comprises a charge roller that faces an image carrier for charging [said] the image carrier.

18. (Amended) The device as claimed in claim 1, wherein the filaments have base portions thereof affixed to a core of [said] the brush roller by electrostatic implantation.

19. (Amended) The device as claimed in claim 18, wherein the member to be cleaned comprises a cylindrical rotary body, and [said] the brush contacts a surface of [said] the rotary body at a position above a horizontal plane containing an axis of [said] the rotary body.

20. (Amended) The device as claimed in claim 19, wherein the member to be cleaned comprises a charge roller that faces an image carrier for charging [said] the image carrier.

21. (Amended) The device as claimed in claim 1, wherein the member to be cleaned comprises a cylindrical rotary body, and [said] the brush contacts a surface of [said] the rotary body at a position above a horizontal plane containing an axis of [said] the rotary body.

22. (Amended) The device as claimed in claim 21, wherein the member to be cleaned comprises a charge roller that faces an image carrier for charging [said] the image carrier.

23. (Amended) In a unit including a cleaning device and a member to be cleaned thereby, [said] the cleaning device [comprises] comprising:

a brush roller having a brush that contacts a surface of [said] the member to be cleaned, [and said] the brush roller being movable from a position in which the brush is away from and not in contact with the surface of the member to be cleaned to a position in which

the brush contacts [said] the surface of the member to be cleaned due to a weight of [said] the brush roller, and the brush roller rotates by following a movement of [said] the surface of the member to be cleaned.

C 24. (Amended) In an image forming apparatus including a cleaning device and a member to be cleaned, [said] the cleaning device [comprises] comprising:

a brush roller having a brush that contacts a surface of [said] the member to be cleaned, [and said] the brush roller being movable from a position in which the brush is away from and not in contact with the surface of the member to be cleaned to a position in which the brush contacts [said] the surface of the member to be cleaned due to a weight of [said] the brush roller, and the brush roller rotates by following a movement of [said] the surface of the member.

a/b 25. (Amended) In a brush roller, the brush roller comprising:

filaments [have] having a length of 2 mm or below, a diameter of 2 denier or below and a density of 20,000 filaments/cm<sup>2</sup> or above.

a/b 26. (Amended) The brush roller as claimed in claim 25, wherein the filaments have base ends thereof affixed to a core of [said] the brush roller by electrostatic implantation.

ρ 27. (Amended) The brush roller as claimed in claim 25, wherein [said] the brush roller has a weight of 50 g or above, but 200 g or below.

ρ 28. (Amended) The brush roller as claimed in claim 27, wherein the filaments have base ends thereof affixed to a core of [said] the brush roller by electrostatic implantation.